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ABSTRACT

This report summarizes the impact of Georgia's Prekindergarten Program on two cohorts of children and families. About half of Cohort 1, 214 children and families, now in first grade, attended the Prekindergarten Program for less than 1 year when it was a pilot program. Half of Cohort 2, 534 children and families, now in kindergarten, had a full school year of the program. Comparison groups for each cohort, stratified by ethnicity, gender, and SES, were selected in equal numbers from three geographical areas in Georgia. A family interview (Cohort 1) or questionnaire (Cohort 2) was used to obtain information on demographics and use of social services. Teachers completed questionnaires quantifying parent involvement. The Developmental Rating Scales, a project-designed instrument, evaluated physical, self-help, social, academic, and communicative development. The Kindergarten Teacher Questionnaire was used to obtain information on absences, referrals, and promotions and was completed during the last week of school. Results indicated that Cohort 1 prekindergarten and comparison children and families did not differ in any area. For Cohort 2, however, children completing prekindergarten differed from comparison children in several ways, including: (1) higher ratings in all five developmental areas; (2) fewer absences; and (3) more promotions to first grade. There was no difference in parent participation in kindergarten. For both prekindergarten and comparison groups, parent participation and school attendance were correlated with children's development and promotion. Prekindergarten children in center-based programs received higher first-grade ratings on social development than home-based children. (KDFB)

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The Longitudinal Study of Georgia's Prekindergarten Children and Families

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Executive Summary

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(1994-95)

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The Longitudinal Study of Georgia's Prekindergarten Children and Families

presented to

Instructional Services

Georgia Department of Education

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Summary

During this third year of the Prekindergarten Evaluation, children and families that participated in the Prekindergarten Program during its first two years were studied. This report concerns these two cohorts of children and families. Cohort 2, in kindergarten, and Cohort 1, in first grade, were assessed to ascertain whether the former prekindergarten children and families differed from children and families who had not had preschool experience. From the beginning, Cohort 1 has served as the Evaluators' pilot group with which to develop procedures and instrumentation.

Cohort 1 attended the Prekindergarten Program when it was a pilot program. Although Cohort 1 served a useful purpose for both the Prekindergarten Program developers and the Evaluators, it is important to recognize several drawbacks in using Cohort 1 as a test of the effectiveness of the Prekindergarten Program. First, because programs did not start at the beginning of the school year, Cohort 1 children did not have a full school year's prekindergarten experience. Second, because of the small sample size, results on Cohort 1 families and children are not as reliable as results on the following year's Cohort 2, which consisted of a much larger sample.

Cohort 2, selected during the second year of the Prekindergarten Program, entered kindergarten at the beginning of the 1994-95 school year. The evaluation of Cohort 2 provides a sound and highly reliable test of the outcomes of the Prekindergarten Program. By the second year, the program had gained maturity and experience and had been modified and revised as a result of observations and evaluations made during the previous (pilot) year. Also, the children and families participated in the Prekindergarten Program for a complete school year. In addition, the sample used in the evaluation was expanded to include a larger number of sites and an increased number of families and children over that used in the evaluation of the pilot program in the previous year. The Cohort 2 sample size was almost three times larger than that of Cohort 1. An increase in the number of sites and in the number of children and families in the sample means that the sample more closely approximates the population from which it was selected on the characteristics measured. Thus, an increased sample size significantly reduces the expected error of measurement and enhances the reliability of the results.

THE KINDERGARTEN CHILDREN (COHORT 2)

Initially, Cohort 2 consisted of 317 children and families selected from Prekindergarten at the beginning of the 1993-94 school year. Of this number, 39 did not continue in the sample through the kindergarten year because of withdrawal during the prekindergarten year, moving out of the state or country before the kindergarten year began, or entering a private school that would not provide information to the Evaluation. The number starting kindergarten in the 1994-95 school year was 278. During the kindergarten year two children were placed in a self-contained special education class and nine children moved out of Georgia. The number remaining in the sample at the time the comparison group was selected was 267.

After the former prekindergarten children entered kindergarten in the 1994-95 school year, they were located in 180 classrooms in 92 different schools in 27 school districts. Because of family

relocations, 201 classrooms in 104 schools in 32 school districts participated in the Evaluation at some time during the kindergarten year.

A comparison group of 267 children, stratified on ethnicity, gender, and socioeconomic status, was selected from all children who had not had preschool in classrooms attended by former prekindergarten children. Socioeconomic status was measured by free/reduced lunch eligibility and the highest educational level in the family. An equal number of prekindergarten and comparison children were located in three geographical areas of Georgia: north, central, and south.

Families

Some information was obtained directly from the families. Other data, that concerning the families' involvement with the schools, were provided by the teachers.

The Family Information Form

Teachers sent the Family Information Forms home via the children, collected them in sealed envelopes, and forwarded them to the Evaluation Project. Each family was requested to validate the teacher's information concerning the child's preschool attendance and to provide the following information: mother's and father's educational and employment status, including the name of each one's specific job; a listing of all people residing in the home; a listing of the child's siblings by age and gender; the child's eligibility for free/reduced school lunch; the types of federal and state assistance received; and the type of dwelling in which the family resides. The prekindergarten and comparison families were compared on each of these variables.

On only one variable did the prekindergarten and comparison parents differ. Chi-square tests indicated that there were no differences between the groups on the following variables: (a) highest educational level in the family or mothers' or fathers' educational levels; (b) number of mothers and fathers in each group that were unemployed, employed part time, and employed full time; © mothers' and fathers' occupational levels as classified according to the Hollingshead-Redlich Occupational Scale;[1] (d) adult configuration of the home (single parent, two-parent, multi-adult, and guardian); (e) number of siblings; (f) number of non-sibling children living in the household; (g) total number of adults and children in the household; (h) type of dwelling in which the family resides; (I) eligibility of their children for the free/reduced school lunch program; (j) receipt of assistance, including Aid to Families with Dependent Children (AFDC), food stamps, Supplemental Security Income (SSI), a nutrition program for Women, Infants, and Children (WIC); and (k) the number of sources from which they received assistance. The two groups did differ on housing assistance, χ^2 (1) = 9.89, $p <$ .01, with more prekindergarten than comparison families receiving it.

Family Participation in School Activities

At the beginning of the year a form was sent to the teachers to make them aware that information about parent involvement would be requested at the end of the year. This form was composed of two parts. In the first part teachers indicated how many times parents attended parent

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[1]Hollingshead, A.B. & Redlich, F.E. (1958). Social and mental illness, New York: John Wiley Press.

conferences, volunteered to help in the classroom, visited the classroom, chaperoned field trips, and supported the school in other ways. The prekindergarten and comparison parents did not differ on the frequency with which they participated in any of these activities.

The second part of the form consisted of six questions about school involvement on which teachers rated the parents. The prekindergarten and comparison parents did not differ on these ratings. Many parents in both groups were involved with the classroom consistently or frequently. However, fewer than 20% of the parents participated in school-wide activities such as PTA.

The questions on the second part of the form were intercorrelated. A factor analysis of the scores on these questions yielded one factor, named Parent Participation, which explained 67% of the variance in the six items. An ANOVA indicated that the prekindergarten and comparison parents did not differ on the parent participation factor score.

Children's Development

For the assessment of children's development, a measuring instrument, the Developmental Rating Scales, was constructed in 1993-94 for use with Cohort 1. This instrument was used again in 1994-95 with Cohort 2. This instrument measured the same areas of development as the Developmental Profile II,[2] an instrument that assesses the following five developmental areas: physical, self-help, social, academic, and communicative. A prior study, reported in the 1993-94 Evaluation Report, indicated that the Development Rating Scales were highly reliable.

The Developmental Rating Scales were provided to all teachers of the prekindergarten and comparison children. Teachers rated all children in their classrooms, not just the prekindergarten and the comparison groups, on each of the five scales. Because very high intercorrelations among the five developmental areas were found, a factor analysis was computed. This analysis indicated that most of the variance in all five rating scales was explained by a single factor, which was named Development.

The prekindergarten and comparison children were compared on teachers' ratings of physical, self-help, social, academic, and communicative development by means of a MANOVA. The independent variable was group membership (prekindergarten and comparison), and the dependent variables were the teachers' ratings of the five areas of development. The MANOVA was significant, $F(5, 528) = 6.46$, $p < .001$. ANOVA's for all the individual rating scales were also significant. The prekindergarten children had significantly higher ratings than the comparison children in all five areas of development.

An ANOVA, computed to compare the prekindergarten and the comparison group on the factor, Development, was also significant, $F(1, 533) = 24.94$, $p < .0001$. This analysis provides further support for a significant difference between the prekindergarten and comparison children on teacher ratings of development.

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[2] Alpern, G., Boll, T., & Shearer, M. (1992). Developmental profile II manual. Los Angeles: Western Psychological Services.

Children's Absences, Referrals, and Promotions

The Kindergarten Teacher Questionnaire, an instrument requesting information about absences, referrals, and promotions, was completed by the teacher during the last week of school.

Absences

The prekindergarten and comparison children were compared on absences by means of a one-way ANOVA. The difference between the two groups was significant, $F(1, 532) = 4.90$, $p < .05$. The prekindergarten children had significantly fewer absences than the comparison children.

Referrals

The information provided by teachers on the number of referrals for special services identified children in both groups having severe problems. Referrals were made for the following reasons: academic, behavioral/emotional, family problems, physical, and speech/hearing. Although the comparison group had numerically more referrals than the prekindergarten group, the difference between the two groups was not statistically significant. Most children in both groups had no referrals, as would be expected in kindergarten. However, approximately 20% of the children were referred for at least one problem.

Promotion and Retention

Teachers indicated whether each child would be promoted, "placed" in the higher grade, or retained in kindergarten. Children who were "placed" were advanced to first grade for reasons other than academic readiness. A chi-square indicated that there was a significant difference between the two groups of children on promotion, $\chi^2 (1) = 7.60$, $p < .01$. The groups were compared on retained versus promoted and on retained and placed combined versus promoted. The differences between the two groups of children were significant for both analyses. Significantly more prekindergarten than comparison children were promoted.

Correlations: Development, Absences, Referrals, Promotion, and Parent Participation in School Activities

The relationships among teacher ratings of development in the five areas, the Development factor score, kindergarten absences, referrals for special services, promotion decisions, and the Parent Participation factor score were examined by correlating every variable with all other variables for both the prekindergarten and comparison groups. Because the correlations were essentially identical for the two groups, the data for the groups were combined; and the variable "group" (prekindergarten and comparison) was added to the correlation matrix.

With respect to variables other than "group," all variables are significantly correlated with each other. For all children, regardless of whether they had been in prekindergarten, the high correlations among the developmental rating scores indicate that teachers perceive a great deal of continuity in the different types of development. The significant negative correlations between absences and both the developmental scores and promotion indicate that school attendance is very important to children's success. The significant correlations between the Parent Participation factor score and all variables indicate that parental involvement with the school is also important to children's development and performance.

The variable "group" (prekindergarten versus comparison) was also significantly correlated with all the variables relating to children except referrals and parent participation. These correlations confirm the findings that the prekindergarten and comparison groups differ on most variables. They indicate that prekindergarten has a significant impact on children's development and school performance.

Prekindergarten Variables as a Predictor of Kindergarten Performance

To determine whether prekindergarten absences and mode of service delivery (center-based and home-based) were related to kindergarten performance, correlations were computed between these two variables and the five developmental ratings, promotion, and referral for special services. The correlation between prekindergarten absences and kindergarten absences was significant, r (90) = .34, $p < .001$. This is an important finding which indicates that children who have large numbers of prekindergarten absences are also likely to have frequent kindergarten absences. A significant negative correlation was found between prekindergarten absences and the ability to meet the academic criteria for promotion from kindergarten to first grade.

None of the correlations between the mode of service delivery, classroom based versus home-based, and the kindergarten variables was significant with one exception. The correlation between service delivery mode and the kindergarten teachers' social development ratings was low but significant (r = -.16). This correlation indicated that center-based children had higher first-grade ratings on social development than home-based children.

FIRST GRADE CHILDREN, KINDERGARTEN RETAINEES, AND A SPECIAL EDUCATION STUDENT (COHORT 1)

The Sample

A sample of 135 Cohort 1 children was selected from the Prekindergarten Program during the 1992-93 school year. Attrition occurring during prekindergarten, the following summer, and kindergarten accounted for 24 children. After the prekindergarten children entered kindergarten, a comparison group, comparable on ethnicity, gender, and socio-economic status, was selected. The number of children in Cohort 1 at the end of the 1993-94 school year was 222, including 111 in the prekindergarten group and 111 in the comparison group.

By the beginning of first grade, three prekindergarten and four comparison families had moved out of the state. Returning to Georgia schools in 1994-95 were 108 prekindergarten and 106 comparison children. Of this number, 103 prekindergarten and 95 comparison children entered first grade; 5 prekindergarten and 11 comparison children returned to kindergarten classrooms because they had not been promoted. At the beginning of first grade 1 comparison child was placed into a self-contained special education class.

The 214 Cohort 1 children began the 1994 school year in 118 classrooms in 37 schools in 16 school districts. Because of family relocations, 129 classrooms in 46 schools in 23 districts participated in the evaluation of Cohort 1 at some time during the year.

Data Sources

To compare the former prekindergarten children with the comparison children, teachers provided information about both groups. Families also contributed information about themselves through interviews conducted by family service workers in their communities.

Families

The Parent Interview

A structured parent interview was used to obtain information from the Cohort 1 families. This interview was divided into three sections: Section I, Background Information; Section II, Community Activities and Services; and Section III, a survey of family attitudes, knowledge, and behaviors.

Procedure

Current or former family service workers in Prekindergarten Programs were employed to conduct the interviews. These community residents were able to locate many families for whom a current address was unavailable and to elicit a high level of cooperation. They interviewed all parents that could be located except three that did not want to participate.

A letter was sent directly to the parents of the prekindergarten and comparison children to introduce them to the procedure and to inform them that they would receive an honorarium for participating. Of the 214 families in Cohort 1, 89 prekindergarten and 73 comparison families, a total of 76% of the sample, were interviewed.

Section I: Background Information

In Section I, the parent being interviewed was asked to give the following information: the mother's and father's name, address, educational level, and employment status, including job titles; a description of the child's relationship to all people residing in the home; and a list of the child's siblings by age and gender.

Chi-squares were computed to compare the prekindergarten and comparison groups on all family variables. The chi-squares were not statistically significant, indicating no differences between the two groups on the following variables: (a) highest educational level in the home; (b) mothers' and fathers' educational levels; © mothers' and fathers' full-time, part-time or no employment; (d) mothers' and fathers' occupational levels, classified according to the Hollingshead-Redlich Occupational Scale[3]; (e) adult configuration of the home, consisting of single parent, two parents, multi-adults (mother and some other adult, usually the grandmother), or guardian; (f) siblings; (g) non-sibling children in the home; and (h) total number of adults and children living in the household;

When the children were in kindergarten a year earlier (1993-94), the same information was collected. Consistent with this year's findings, no differences were found between the families of the prekindergarten and comparison children.

Prekindergarten and comparison parents who changed their educational level, job status, and occupation level from 1994 to 1995 were compared. The educational level increased for some members of both groups, but no parent's education increased more than one level. Although numerically a larger percentage of prekindergarten than comparison parents gained an educational level, a chi-square test indicated that the difference between the two groups was not statistically significant.

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[3]Hollingshead, A.B. & Redlich, F.E. (1958). Social and mental illness, New York: John Wiley Press.

Parents' employment status could change from unemployed to employed, from employed to unemployed, or it could remain the same from 1994 to 1995. Chi-square tests indicated that there was no difference between the two groups on changes in either direction.

No parent changed more than one occupational level. Some increased; others decreased; but most remained the same. Chi-square tests indicated there were no differences between prekindergarten and comparison families on these changes.

Section II: Community Activities and Services

The second section of the interview, Community Activities and Services, was designed to ascertain the extent to which families participated in community activities and received assistance in the past or present. Families were also asked to rate their level of satisfaction with these activities and services on a three-point scale from "not satisfied" to "very satisfied".

The prekindergarten and comparison interviewees were assessed on their past and/or present participation in the following community activities: recreation, including sports and exercise programs; church groups; scout or camping leadership; and PTA. Chi-square tests indicated that on their past participation the two groups did not differ. However, in the present, a significantly greater percentage of prekindergarten than comparison parents participate in church groups χ^2 (2) = 10.3, $p < .05$. Numerically, a greater percentage of prekindergarten families engage in scout or camp leadership, but the difference between the two groups is not statistically significant. The prekindergarten and comparison families who participate in each of these activities do not differ on their levels of satisfaction.

The two groups did not differ significantly on the past or present receipt of any of the following types of assistance: free/reduced lunch, Aid to Families with Dependent Children, food stamps, housing assistance, Supplemental Security Income (SSI), Women, Infants and Children nutrition program (WIC), health, Medicaid, and Positive Employment and Community Health (PEACH).

Most families received assistance from one or two sources. There were no significant differences between the prekindergarten and the comparison families on the number of sources from which they received assistance or the levels of satisfaction with the assistance they received.

Section III: Family Attitudes, Knowledge, and Behaviors

The third section of the interview surveyed parents about their attitudes, feelings, knowledge, and behaviors in relation to their children, their children's school and teachers, and community social services. The questions are categorized into a number of topics including: health; community services; feelings of empowerment; children's prosocial behavior; discipline; parents' involvement in their children's learning activities; parents' relationship to the school; children's interest in school and books; and parents' involvement in an intellectual activity (looking at books) with their children.

To compare the prekindergarten and comparison families a MANOVA was computed. The MANOVA was not significant, indicating that the families did not differ significantly on their responses to these questions.

Interviewers' Comments

After the parent interviews were completed, the interview process itself was scrutinized. The consultants who visited the parents were asked a series of questions regarding their ability to obtain the information requested. Their responses indicated that they had difficulties in locating some

families and used a variety of creative strategies for this task. They conducted most interviews in the families' homes, but a few were conducted in another location such as the parent's place of employment, the interviewer's office, a restaurant, and a parking lot. Only on three occasions did families contacted refuse to participate. The interviewers reported minimal reluctance or apprehension from parents to participate. Several interviewers thought that some families may not have participated as freely without the monetary incentive of the honorarium. The Evaluation staff believes that the use of local family service workers to conduct the interviews is largely responsible for the parents' willingness to participate.

Teacher Information

Family Participation in School Activities

The Parent Participation Form, described earlier for the kindergarten teachers, was also used by the first-grade teachers. On the first part of the form teachers indicated how many times parents attended parent conferences, volunteered to help in the classroom, visited the classroom, chaperoned field trips, and supported the school in other ways. A MANOVA, computed to compare the two groups, was not significant, indicating that the prekindergarten and comparison parents did not differ on the frequency with which they participated in any of the activities. However, for all five activities the prekindergarten parents numerically participated more times than the comparison parents. The probability of this group's having a higher level of participation for five out of five tests is less than .05. Thus, when the magnitude of participation in each activity is considered, the groups do not differ; but when the areas of participation are considered as the unit of measurement, the prekindergarten parents seem to participate in the school to a greater extent than the comparison parents.

The second part of the form consisted of six questions on which teachers rated the parents on school involvement. A MANOVA indicated that the prekindergarten and comparison parents did not differ. A majority of parents in both groups participated in most activities directly involving the classroom consistently or frequently. However, a substantial percentage never, rarely, or only occasionally participated. Also fewer than 20% participated in school-wide activities such as PTA.

The questions on the second part of the form were intercorrelated. A factor analysis of the scores on these questions yielded one factor, named Parent Participation, which explained 66% of the variance in the six questions. The prekindergarten and comparison parents did not differ on this factor.

Children's Development

The prekindergarten and comparison children's physical, self-help, social, academic and communication development was assessed and compared using the Developmental Profile II.[4] This test was administered using the method described in the manual as the "self-interview completed by the teacher" (p. 5). Teachers were sent an assessment instrument and instructions for its use for each Cohort 1 child in their classrooms.

For each area of development the Developmental Profile II yields a developmental age score, a differential score between the child's chronological and developmental age, and an IQ equivalence

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[4]Alpern, G., Boll, T., & Shearer, M. (1992). Developmental profile II manual. Los Angeles: Western Psychological Services.

score. The prekindergarten and comparison children were compared on differential age scores and IQ equivalence scores by means of a MANOVA. The MANOVA was not significant, indicating that the two groups of children did not differ on any of the developmental areas or IQ equivalence.

Children's Absences, Referrals, and Promotions

Teachers provided data on absences, referrals, and promotions at the end of the year by completing the First-grade Teacher Questionnaire, an instrument identical to the Kindergarten Teacher Questionnaire described earlier. A one-way ANOVA indicated that the difference between the prekindergarten and comparison children on absences at the end of the kindergarten year was not significant. Chi-squares indicated that the two groups did not differ on number of referrals for special services. Almost 70% of the children in both groups had no referrals. However, over 20% of the children in each group were referred for at least one problem. Teachers indicated whether each child named on the Teacher Questionnaire would be promoted, "placed" in the higher grade, or retained in first grade. Children who were "placed" were advanced to second grade for reasons other than academic readiness. A chi-square test indicated that the two groups did not differ on promotion.

Correlations: Development, Absences, Referrals, Promotion, and Parent Participation in School Activities

The relationship among scores on the five areas of development measured by the Developmental Profile II, the Development factor score, kindergarten absences (1993-94), first-grade absences (1994-95), promotion decisions, referrals for special services, and the Parent Participation factor score were examined by correlating every variable with all other variables for both the prekindergarten and comparison groups. Because the correlations were essentially identical for the two groups, the data for the groups were combined and the variable "group" (prekindergarten and comparison) was added to the correlation matrix. Non-significant correlations were found between "group" and the other variables, confirming earlier comparisons, that indicated no differences existed between the prekindergarten and comparison groups on any of the variables.

Most of the individual development scores and the factor score Development are negatively correlated with absences and referrals and are positively correlated with parent participation and promotion. Kindergarten absences (1993-94) were highly correlated with first-grade absences (1994-1995). Significant negative correlations between absences and both the developmental scores and promotion indicate that school attendance is very important to children's success. The significant correlations between Parent Participation and most developmental variables and the negative correlation between Parent Participation and absences indicate that parental involvement with the school, children's development, and absences are interrelated.

The inter-correlations for the two groups combined suggest that what really makes a difference for these children is the developmental readiness with which they enter school and the interest of their parents as indicated by their efforts to facilitate the children's attendance and their school involvement. It must be stressed that the pilot Prekindergarten Program attended by these Cohort 1 children did not have an opportunity to have a great impact because it was only in existence for a part of the school year.

Prekindergarten Variables as Predictors of First Grade Performance

To determine whether Prekindergarten absences in center-based programs and mode of service delivery (center-based and home-based) were related to first-grade performance, correlations

were computed between these two variables and the scores on the five areas of the Developmental Profile II, first-grade absences, promotion, and referral for special services. The correlation between prekindergarten absences in center-based programs and first-grade absences was significant, $r(76) = .47$, $p < .001$. This is an important finding that indicates children who had large numbers of prekindergarten absences are also likely to have frequent absences as much as two years later in first grade. No other correlations between prekindergarten absences and first grade performance were significant.

None of the correlations between the mode of service delivery and the other variables was significant. This indicates that delivery mode, at least within the limited time period of the pilot year, has no effect on first-grade variables.

CONCLUSION

The results of the evaluation of Cohort 2 children are very robust in indicating that the Prekindergarten Program had a positive effect on all characteristics that were assessed except referrals for special services. Kindergarten teachers made few referrals, and the number of prekindergarten or comparison children having referrals did not differ. The prekindergarten children were superior to the comparison children on all five measured areas of development, attendance, and promotion. The parents of the two groups did not differ.

The Cohort 1 prekindergarten and comparison children and families did not differ. However, Cohort 1 does not provide a valid test of the effects of the Prekindergarten Program. The children were in the pilot Prekindergarten Program which did not operate for the full school year. Also, the number of children in the program, and in the evaluation sample size, was too small to yield highly reliable data.

Cohort 2, consisting of a large sample from a full-year's Prekindergarten Program, will be evaluated in first grade next year. We expect the data from next year's first grade to yield reliable results more favorable to the Prekindergarten Program than this year's data for the reasons stated below.

- The Prekindergarten Program that these children attended had gained maturity and experience. Both the Prekindergarten Program and the evaluation procedures had been modified and revised on the basis of the knowledge gained from the previous year.
- The children and families participated in the program for a complete school year.
- The evaluation sample included a larger number of sites, and the number of families and children tripled. A larger sample more closely approximates the population from which is was selected on the characteristics measured and significantly reduces error of measurement.